CLAIMS

What is claimed is:

1. A method for measuring IQ path mismatch in transceivers, the method comprising:

estimating a transmitter IQ mismatch in a form of gain and phase response for transmitter I and Q paths sharing a receiver path; and

estimating a receiver IQ mismatch in a form of gain and phase response for receiver I and Q paths sharing a signal source.

2. The method of claim 1 wherein estimating a transmitter IQ mismatch and estimating a receiver IQ mismatch further comprises measuring a difference in the gain and phase response between the transmitter I and Q paths and between the receiver I and Q paths.

3. The method of claim 2 wherein measuring further comprises sending a tone signal and measuring a power and phase shift for all of desired frequency points.

4. The method of claim 3 wherein measuring further comprises sending uniformly spaced multi-tone white signals, taking a fast Fourier transform (FFT) of a unit period of the uniformly spaced multi-tone white signals, and calculating the response from a power and phase of each tone.

5. The method of claim 2 further comprising compensating for the difference of the transmitter and receiver I and Q paths using a digital FIR filter.

6. The method of claim 5 further comprising utilizing iterative estimation for filter tap parameters during the compensating.

7. A system for estimation of IQ path mismatch during signal modulation, the system comprising

a transceiver, the transceiver including a transmitter and a receiver; and

a processor coupled to the transceiver, the processor identifying a transmitter IQ mismatch in a form of gain and phase response for transmitter I and Q paths sharing a receiver path, and identifying a receiver IQ mismatch in a form of gain and phase response for receiver I and Q paths sharing a signal source.

8. The system of claim 7 wherein the processor identifies a transmitter IQ mismatch and identifies a receiver IQ mismatch by measuring a difference in the gain and phase response between the transmitter I and Q paths and between the receiver I and Q paths.

9. The system of claim 8 wherein the processor sends a tone signal and measures a power and phase shift for all of desired frequency points.

10. The system of claim 9 wherein the processor sends uniformly spaced multi-tone white signals, taking a fast Fourier transform (FFT) of a unit period of the uniformly spaced multi-tone white signals, and calculating the response from a power and phase of each tone.

11. The system of claim 8 further comprising a digital FIR filter coupled to the transmitter and receiver paths that compensates for the difference of the transmitter and receiver I and Q paths.

12. The system of claim 11 wherein the processor utilizes iterative estimation for filter tap parameters during the compensating.

13. A method for estimating IQ path mismatch in a transceiver, the method comprising:

measuring a difference in the gain and phase response between transmitter I and Q paths and between receiver I and Q paths of a transceiver, the transmitter I and Q paths sharing a receiver path and the receiver I and Q paths sharing a signal source; and

compensating for the difference of the transmitter and receiver I and Q paths using a digital FIR filter.

14. The method of claim 13 wherein measuring further comprises sending a tone signal and measuring a power and phase shift for all of desired frequency points.

15. The method of claim 14 wherein measuring further comprises sending uniformly spaced multi-tone white signals, taking a fast Fourier transform (FFT) of a unit period of the uniformly spaced multi-tone white signals, and calculating the response from a power and phase of each tone.

16. The method of claim 15 wherein compensating further comprises utilizing iterative estimation for filter tap parameters.

17. The method of claim 16 further comprising performing the measuring and compensating for spectrum efficient modulation.